

SEMI-ANNUAL PERFORMANCE REPORT

California Public Employees' Retirement System

Private Equity Program

Semi-Annual Report – June 30, 2019

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Introduction and Executive Summary

Overview

This report provides a review of CalPERS Private Equity Program as of June 30, 2019, and includes a review and outlook for the Private Equity industry. CalPERS began investing in the Private Equity asset class in 1990. CalPERS currently has an 8% Policy Target allocation to the Private Equity asset class. The total value of the portfolio was \$26.5 billion¹, with total exposure (net asset value plus unfunded commitments) of \$45.0 billion². The Private Equity Portfolio represented 7.1% of CalPERS total assets as of June 30, 2019.

Executive Summary

Portfolio

- The Portfolio is diversified by strategy, with Buyouts representing the largest allocation at nearly 70% of total Private Equity net asset value (NAV).
 - Mega and Large buyout funds represent approximately 56% of CalPERS' Buyouts NAV, and 39% of total Private Equity Program NAV.
- Assets within the United States comprise approximately 60% of the Program's NAV.
- Fund investments represent 69% of NAV, with the balance in Customized Investment Accounts (17%), Fund of Funds (9%), and Co-Investments/Direct Investments (5%).

¹ Source: State Street cash-flow adjusted NAVs, as of 6/30/2019.

² Source: State Street, CalPERS. Total exposure is the sum of NAVs and unfunded commitments.



Performance

- The Program had a value increase (net of contributions and distributions) of \$0.4 billion for the first half of 2019, and \$2.1 billion from July 1, 2018 to June 30, 2019.
- The Private Equity Program outperformed its Policy Benchmark by 370 basis points in the 1-year trailing period, but has underperformed across trailing periods of 3-, 5-, and 10-years.
 - The Program outperformed the FTSE All World Index plus 150 basis points in the trailing 1- and 5-year periods, while slightly underperforming in the 3- and 10-year periods.

Activity

- The Private Equity Program experienced a net positive cash flow of \$1.7 billion through the first half of 2019, and \$2.8 billion for the four quarters ending June 2019.
- For the first half of 2019, Staff completed 9 commitments totaling \$3.6 billion, and 17 commitments totaling \$6.7 billion from July 2018 through June 2019.
- Since 2011 CalPERS has received nearly \$34 billion in net cash flow from the Private Equity Portfolio.

Portfolio Overview

CalPERS Private Equity Overview

As of June 30, 2019

Strategy	NAV ¹ (\$ mm)	Percent of Total NAV (%)	CalPERS Target (%)	Target Range (%)
Buyout	18,060	68.2	65	55-75
Credit	1,992	7.5	10	0-15
Growth/Expansion	3,715	14.0	15	5-20
Opportunistic	2,109	8.0	10	0-15
Venture	550	2.1	1	0-7
Other ²	45	0.2	NA	NA
Total Program	26,472	7.1³	8	+/- 4%

- The CalPERS Private Equity Program was within the diversification ranges outlined in the Private Equity Investment Policy.
- Due to the Program's shift away from Venture in recent years, the sector is becoming a smaller portion of overall exposure.
- The overall private equity program was slightly below the Policy Target of 8% as of June 30, 2019.

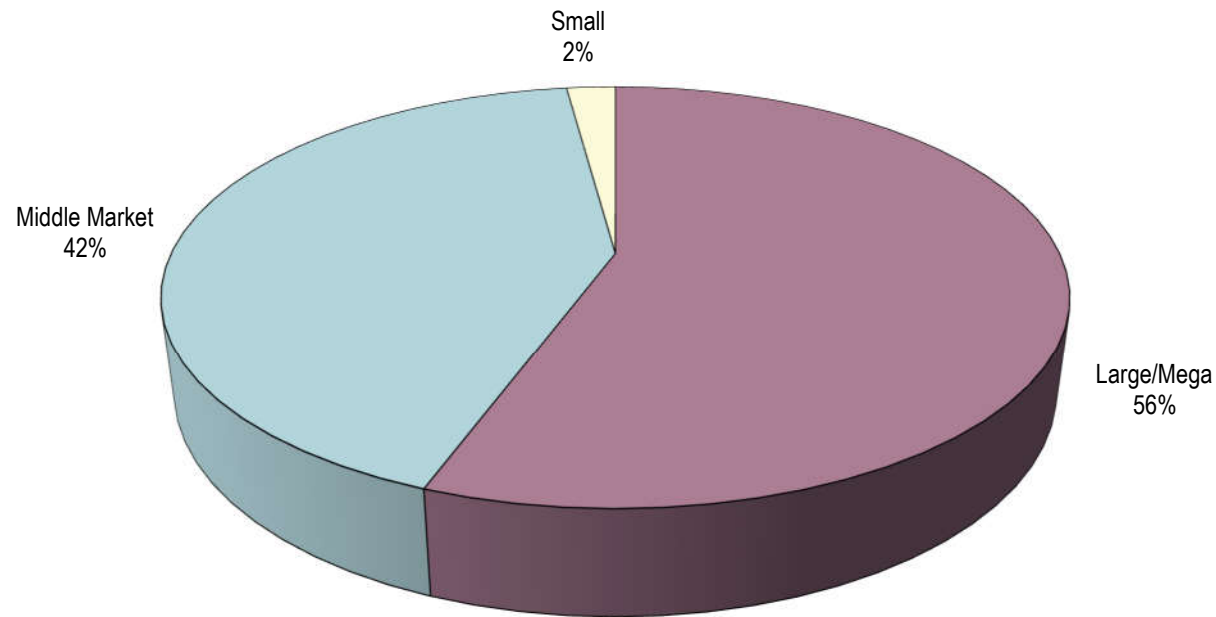
¹ Source: State Street.

² Includes currency and stock holdings.

³ PE program NAV as a percent of total CalPERS portfolio as of 6/30/2019.



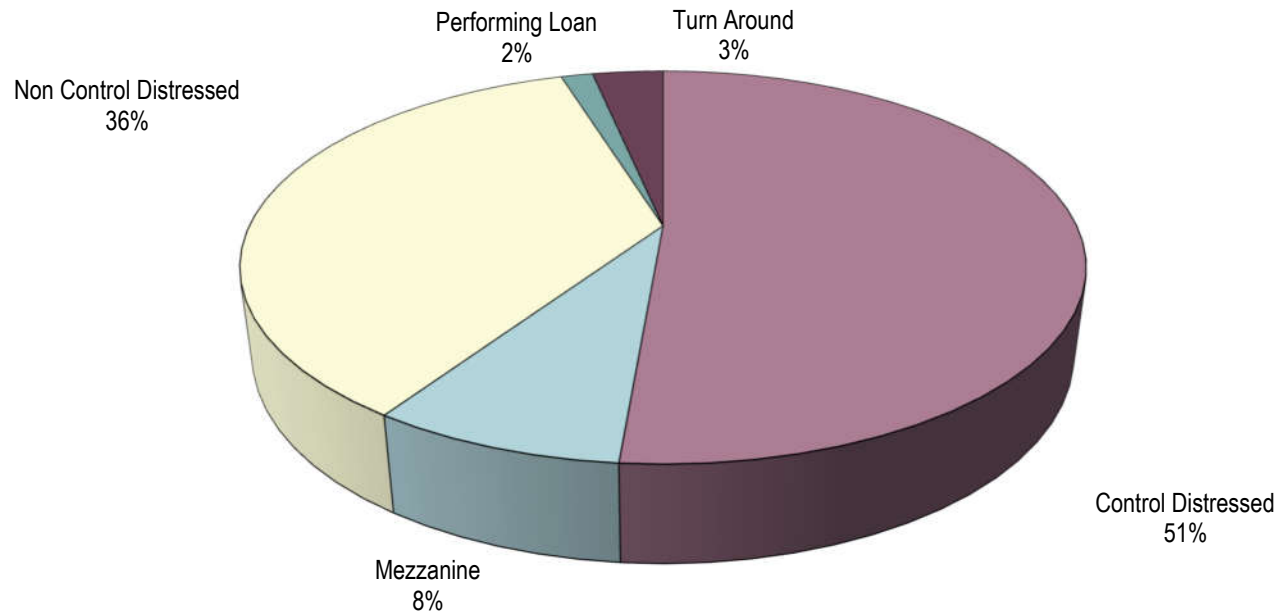
Buyouts Exposure¹



- The CalPERS Buyouts portfolio maintains a large exposure to both Large/Mega Buyouts (56%) and Middle Market Buyouts (42%), with minimal exposure to Small Buyouts (2%).

¹ Source: State Street, CalPERS. Exposure is the sum of NAVs and unfunded commitments.

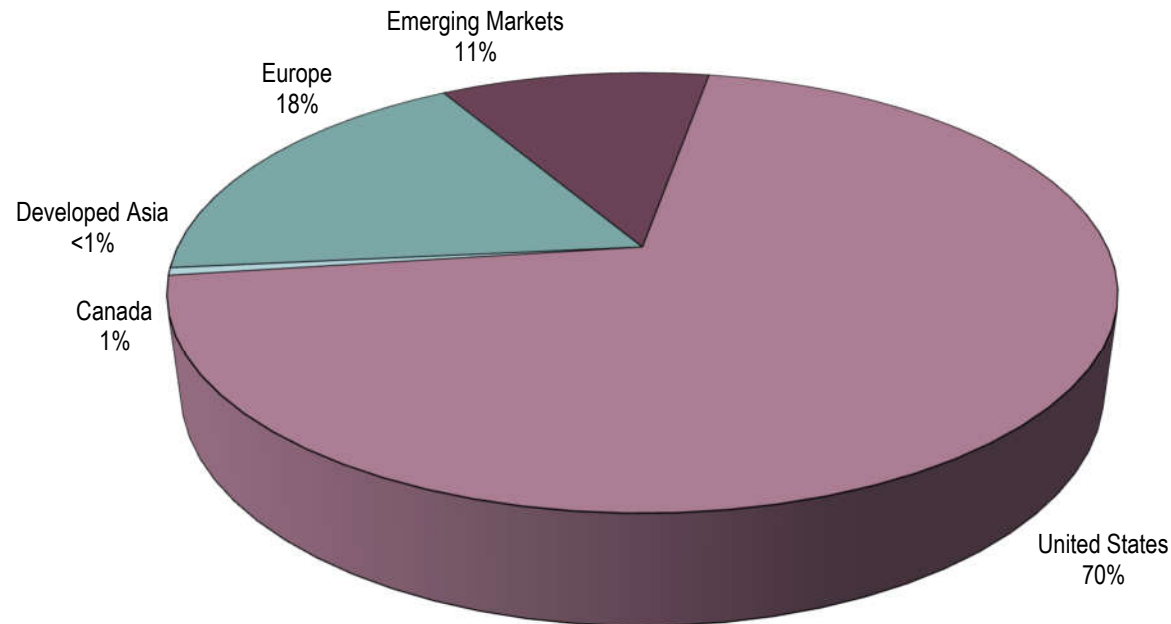
Credit Exposure¹



- Just over half of CalPERS Credit portfolio exposure is attributable to Control Distressed investments with another 36% in Non Control Distressed investments. Mezzanine investments (8%), Turn Around investments (3%), and Performing Loans (2%) make up the remainder of CalPERS Credit exposure.

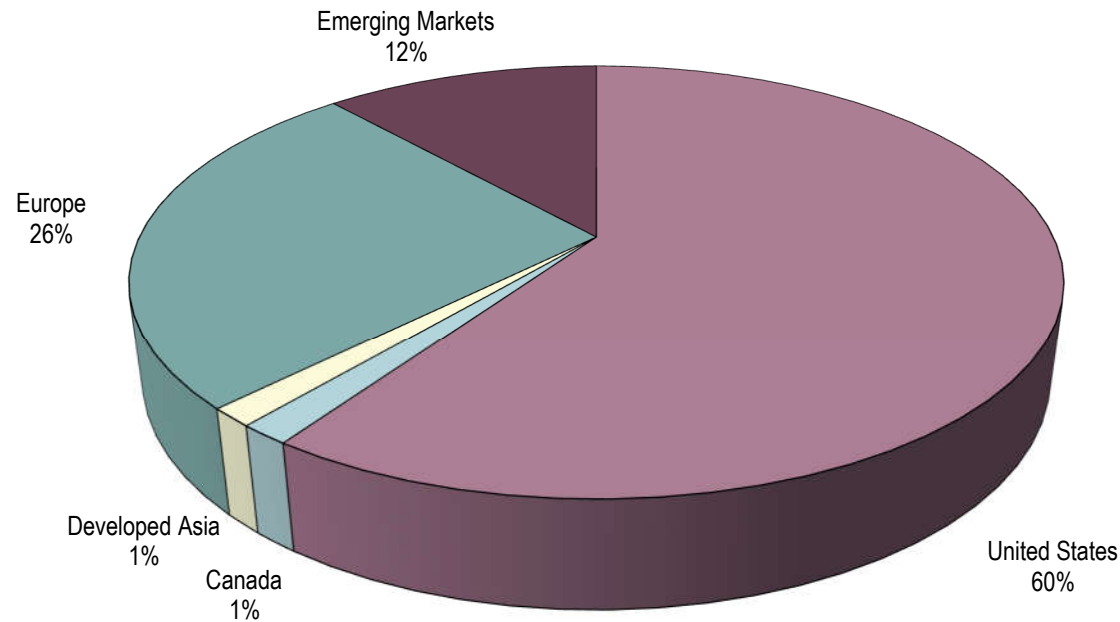
¹ Source: State Street, CalPERS. Exposure is the sum of NAVs and unfunded commitments.

Fund-Level NAV by Region¹



- The Program has primarily targeted U.S.-focused investments, which comprise approximately 70% of the current portfolio value at the fund level.

¹ Source: State Street.

Asset-Level NAV by Region¹

- At the asset level, the majority of the Program's NAV is held in U.S.-based portfolio companies at 60%, along with meaningful exposure to Europe (26%), and Emerging Markets (12%).

¹ Source: CalPERS, as of 6/30/2019.

Vintage Year Composition (2006 – H1 2019)

Total Commitments (\$ bn)¹



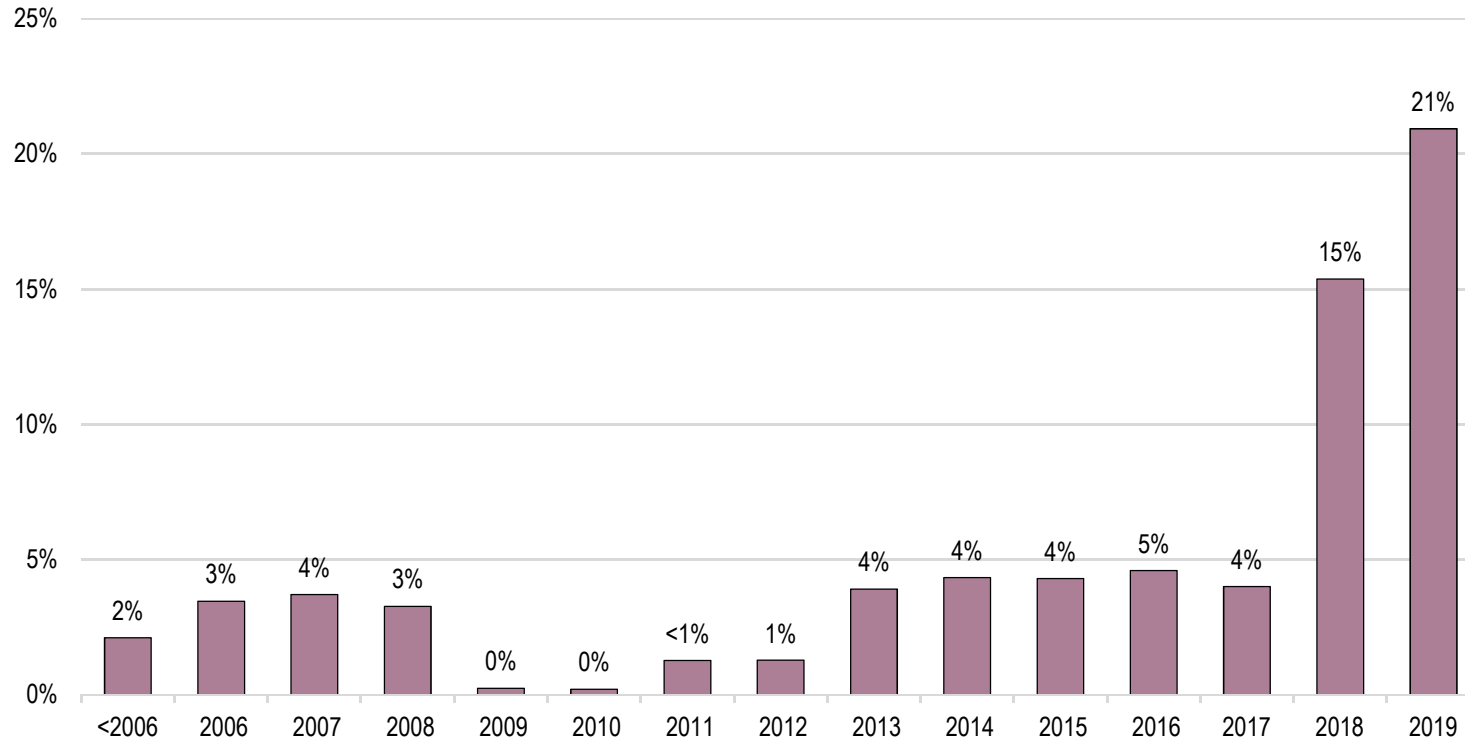
- The PE program has recently increased its annual commitment pace, committing more to 2019 vintage year funds during the first half of the year than to any previous post-crisis vintage year.
- The Program committed 35% of total historical commitments to the 2006-2008 vintage years.

¹ CalPERS. Some recent commitments are not yet included in data.



Vintage Year Composition

Vintage Year (% of Unfunded Commitments)¹

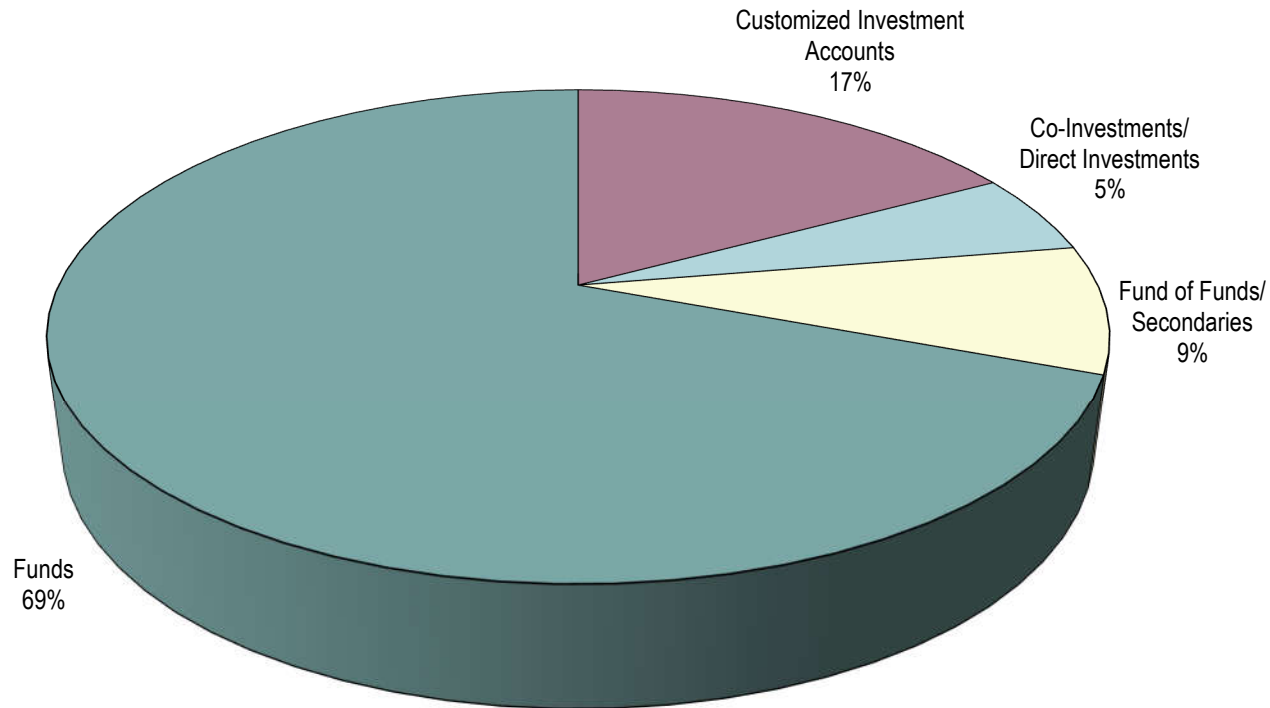


- Vintage years 2018 and 2019 account for over one-third of the Program’s current unfunded commitments.

¹ CalPERS. Total unfunded commitments includes fund of fund commitments, which do not yet have a vintage year.



NAV by Structure¹

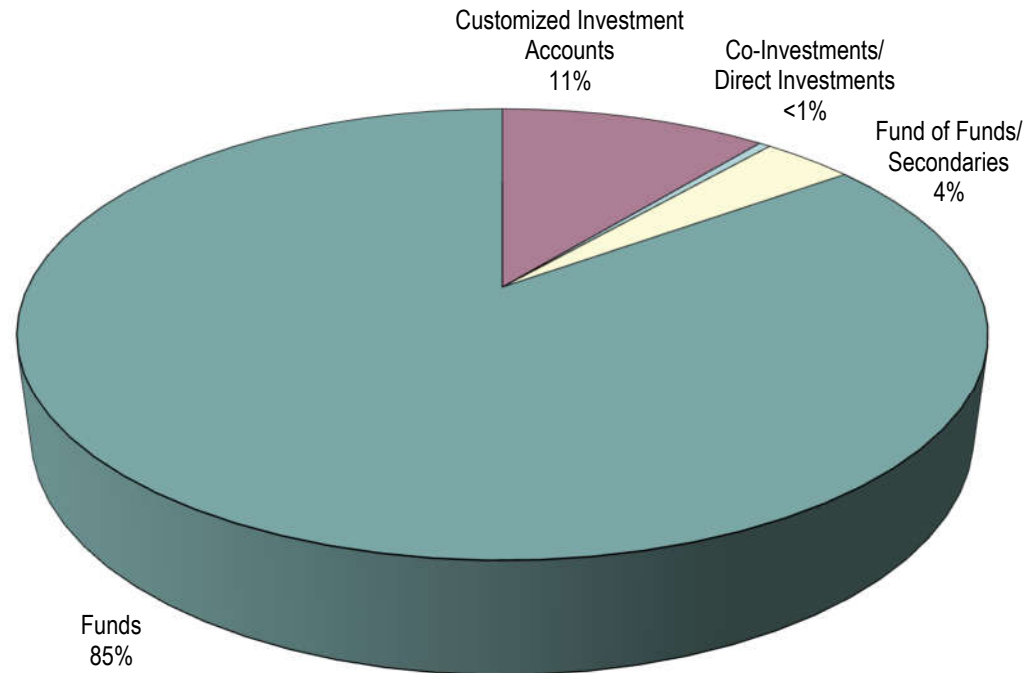


- Fund investments make up over two-thirds of the Program's NAV.

¹ Source: State Street.



Unfunded Commitment by Structure¹



- Fund investments comprise even more of the Program's unfunded commitments (relative to NAV) at 85% of the total.
- Co-Investments, Direct Investments, Fund of Funds, and Secondaries make up only 5% of the Program's unfunded commitments, while comprising close to 15% of the Program's NAV.

¹ Source: CalPERS.

Largest Manager Relationships As of June 30, 2019

Manager	Number of Vehicles ¹	Remaining Value ² (\$ mm)	Unfunded Commitment ² (\$ mm)	Total Exposure (\$ mm)	Total Program Exposure (%)
The Blackstone Group ³	24	2,897	2,319	5,216	11.6
The Carlyle Group ⁴	25	1,315	1,481	2,796	6.2
CVC Capital Partners	8	1,750	790	2,539	5.6
Hellman & Friedman Capital Partners	6	1,220	718	1,938	4.3
Permira	7	893	964	1,857	4.1

- CalPERS PE Program has regularly committed across several vehicles offered by the managers listed above, including select co-investments. In several cases, the commitments are managed by separate teams within the manager and execute on different strategies.
- During the first half of 2019, CalPERS made commitments to Blackstone Capital Partners VIII and Permira VII.

¹ Only includes vehicles with remaining exposure. Includes co-investments.

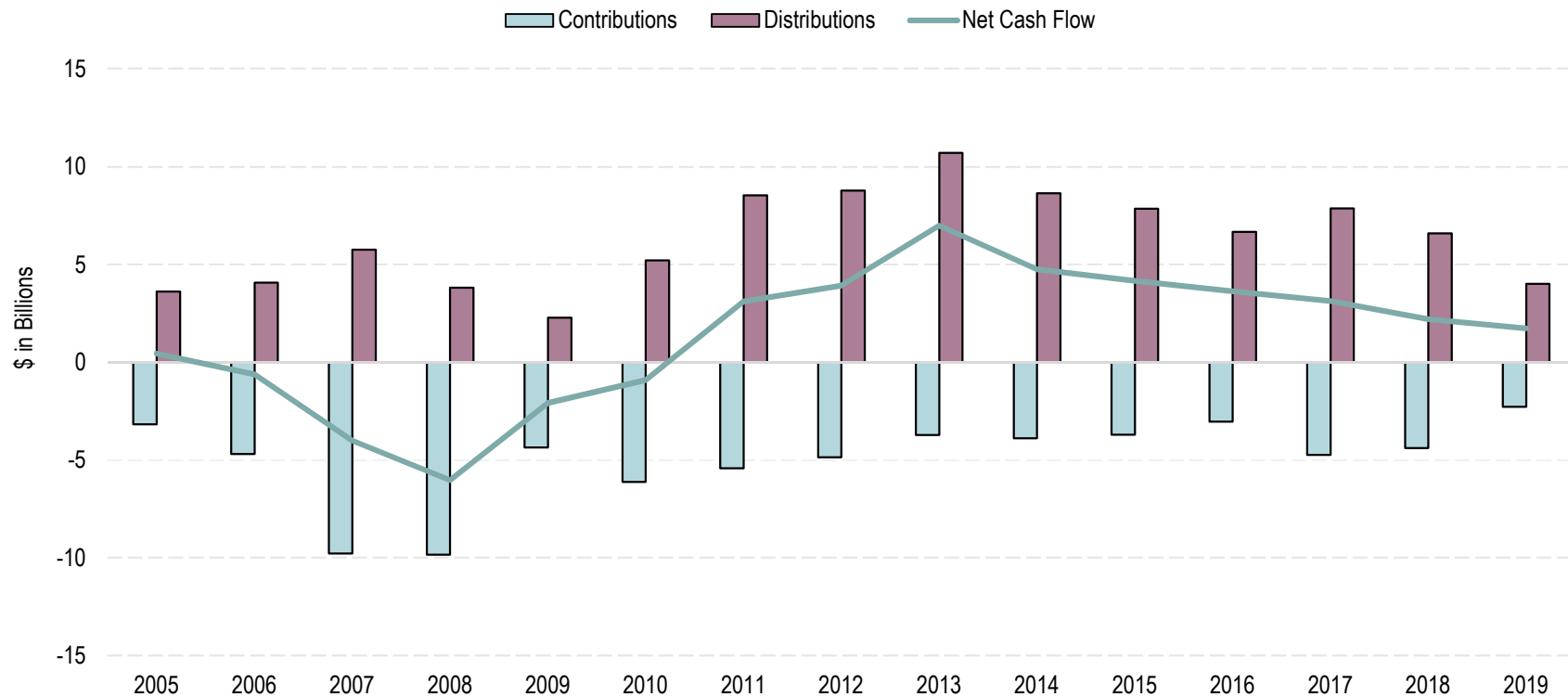
² Source: CalPERS.

³ Includes GSO.

⁴ Includes Carlyle Realty Partners, Carlyle Infrastructure, and an investment in The Carlyle Group. Does not include Carlyle/Riverstone.



Annual Cash Flows – Total Program Through June 30, 2019¹



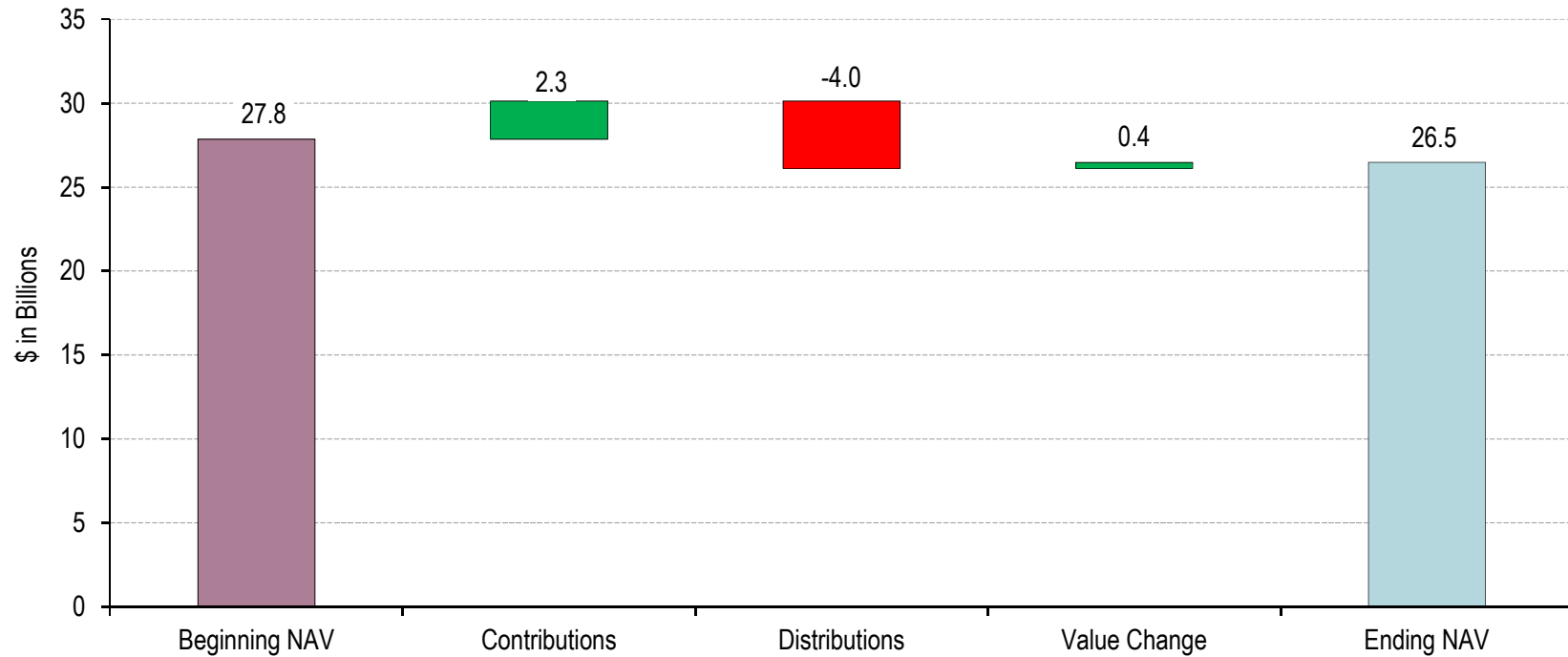
- Since 2011, CalPERS has received \$33.6 billion in net distributions due to the strong exit environment.
- This trend continued through the first half of 2019, though the pace of net distributions has slowed since the 2013 calendar year during which CalPERS received \$7.0 billion in net distributions.

¹ Source: State Street.



Program Performance

Program Value Change – January 1 to June 30, 2019¹



- The Private Equity Program reported a total value decrease of approximately \$1.4 billion in the six months from January to June 2019, as strong net cash distributions more than offset the portfolio value increase.
- The Private Equity Program reported a positive portfolio value increase of approximately \$0.4 billion during this time period.

¹ Source: State Street, CalPERS.

Program Performance

	1 Year	3 Year	5 Year	10 Year
CalPERS PE Program¹	7.7	12.5	9.6	14.0
<i>Policy Benchmark²</i>	4.0	14.1	10.3	16.6
<i>Cambridge Associates All PE Global³</i>	13.1	14.7	12.2	15.3
<i>FTSE All World + 150 bp⁴</i>	4.4	12.7	8.5	14.1
Excess vs. Policy Benchmark (%)	↑ 3.7	↓ -1.6	↓ -0.8	↓ -2.5
Excess vs. CA All PE Global (%)	↓ -5.4	↓ -2.1	↓ -2.6	↓ -1.3
Excess vs. FTSE All World + 150 bp (%)	↑ 3.4	↓ -0.2	↑ 1.0	↓ -0.1

- The overall Program performance has shown strong absolute returns in the 1-, 3-, 5-, and 10-year time periods, but other than the 1-year time period, continues to trail the Policy Benchmark.
 - The Program's longer term historical performance has exceeded the Private Equity projected return included in the recently adopted Capital Market Assumptions (8.3%).
- The Program's performance has underperformed the Cambridge Associates index (private equity peer index).
- The Program has exceeded the FTSE All World Index plus 150 basis points in the 1- and 5-year periods, while slightly underperforming in the 3- and 10-year periods.

¹ Source: State Street. CalPERS returns are reported as time-weighted.

² The current Policy Benchmark is a Custom FTSE All World, All Cap Equity + 150 basis points, lagged by one quarter. Previous benchmark was blend FTSE U.S. + FTSE AW ex U.S. + 3% lagged 1 quarter from September 2011 to June 2018, Wilshire 2500 ex-tobacco +3% between July 2009 and September 2011, and the Custom Young Fund Index prior to July 2009.

³ Returns as of March 31, 2019. Figures are IRR.

⁴ Figures are one quarter lagged, time weighted.



Strategy Performance¹

	NAV (\$ mm)	1 Year	3 Year	5 Year	10 Year
Buyouts	18,060	8.2	14.2	11.0	14.3
Credit	1,992	1.8	6.0	2.2	14.8
Growth/Expansion	3,715	5.5	14.8	10.9	14.0
Opportunistic	2,109	13.0	10.6	14.0	13.4
Venture	550	16.9	3.8	3.2	6.7
Other ²	45				
CalPERS PE Program	26,472	7.7	12.5	9.6	14.0

- Buyouts investments have generated strong returns across all trailing time periods.
- While outperforming in the 1-year time period, the Program's Venture portfolio has underperformed other strategies.
- The Program's Credit portfolio has generally underperformed across 1-, 3-, and 5-year periods while outperforming all other strategies in the trailing 10-years.
- Opportunistic investments have generated consistently strong returns across trailing periods, outperforming all other strategies over the trailing 5-year period.

¹ Source: State Street. All trailing returns included in this report are time-weighted.

² Includes currency and stock holdings.



Performance by Structure¹

	NAV (\$ mm)	1 Year	3 Year	5 Year	10 Year
Customized Investment Accounts	4,518	10.1	11.5	9.4	14.5
Co-Investments/Direct Investments	1,398	4.5	19.7	9.6	17.0
Fund of Funds/Secondaries	2,204	2.8	5.6	8.2	8.8
Funds	18,306	8.4	13.3	9.8	14.6
Other ²	45				
CalPERS PE Program	26,472	7.7	12.5	9.6	14.0

- Over all trailing time periods, Fund investments have performed well while also making up a significant majority of the PE Program.
- Co-Investments/Direct Investments performed very well across the 3- and 10-year periods, while generating low returns in the trailing 1-year period. Due to the concentration of the Co-Investment/Direct Investment portfolio, a small number of substantial investments tend to drive performance.
- Fund of Funds/Secondaries have lagged the broader PE Program over all trailing time periods.

¹ Source: State Street.

² Includes currency and stock holdings.



Performance by Geography¹ (Fund-Level)

	NAV (\$ mm)	1 Year	3 Year	5 Year	10 Year
United States	18,535	8.4	12.2	8.7	14.2
Canada	145	22.8	20.2	17.2	16.0
Developed Asia	3	-55.9	-3.3	0.9	2.5
Europe	4,780	10.4	18.3	14.3	14.7
Emerging Markets	2,963	-0.1	7.6	9.6	12.8
Other ²	45				
CalPERS PE Program	26,472	7.7	12.5	9.6	14.0

- The Program's returns are largely driven by investments in United States.
- European investments have outperformed U.S. investments over the previous 1-, 3-, 5-, and 10-year periods.
- Investments in the Emerging Markets have generally underperformed investments in other regions while still generating solid absolute returns over the trailing 5- and 10-year periods.
- The Program's investments in Developed Asia, comprising a very small amount of capital, significantly underperformed over the prior 1-year period due to mark-downs of assets within a Japan-focused Buyout fund. Investments in Canada, also accounting for a relatively small portion of total NAV, have generated strong returns over 1-, 3-, 5-, and 10-year periods.

¹ Source: State Street.

² Includes currency and stock holdings.



Program Activity

CalPERS Private Equity Completed Investments – H1 2019

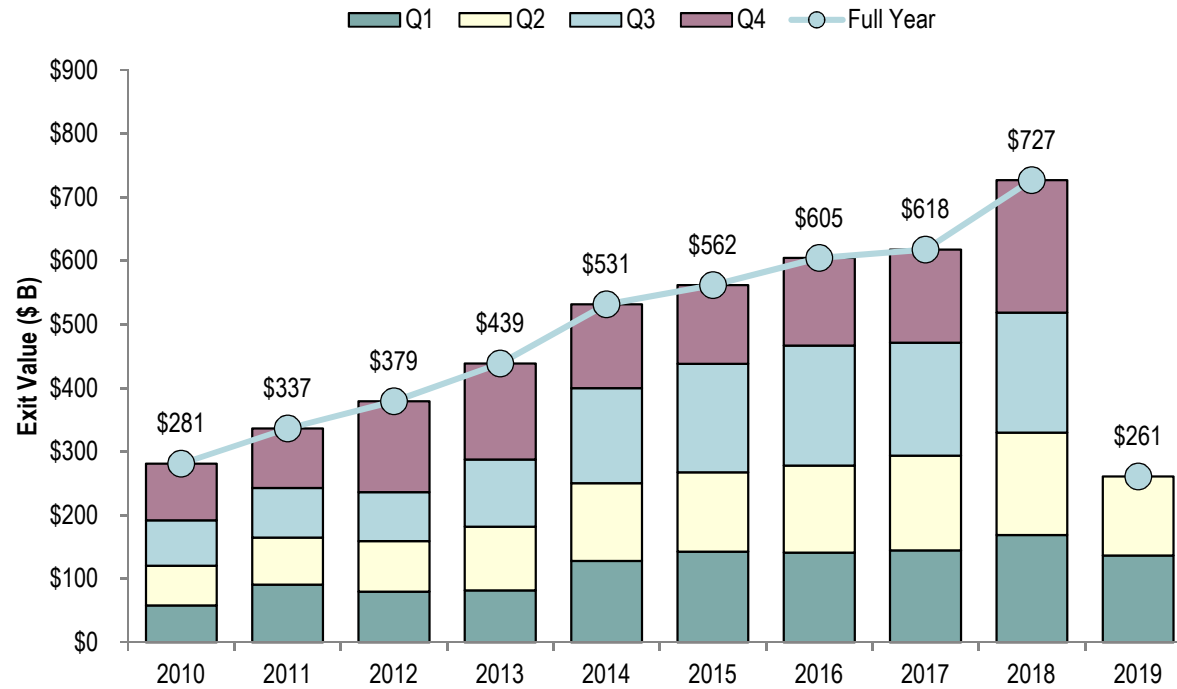
Investment	Date Signed	Geography	Strategy	Commitment (\$ mm)
TCV X	January 2019	US	Growth Equity	175
Siris IV	February 2019	US	Buyout	100
Summit Partners Growth Equity X	February 2019	US	Growth Equity	250
Trident VIII	March 2019	US	Buyout	400
Blackstone Capital Partners VIII	March 2019	Global	Buyout	750
Advent GPE IX	May 2019	US/Europe	Buyout	550
Permira VII ¹	June 2019	Europe	Buyout	582
Lindsay Goldberg V	June 2019	US	Buyout	250
Cerberus CAL III	June 2019	US/Europe	Buyout	500

- For the first half of 2019, Staff completed nine commitments totaling \$3.6 billion.

¹ Commitment was €520 million.

Private Equity Industry Review

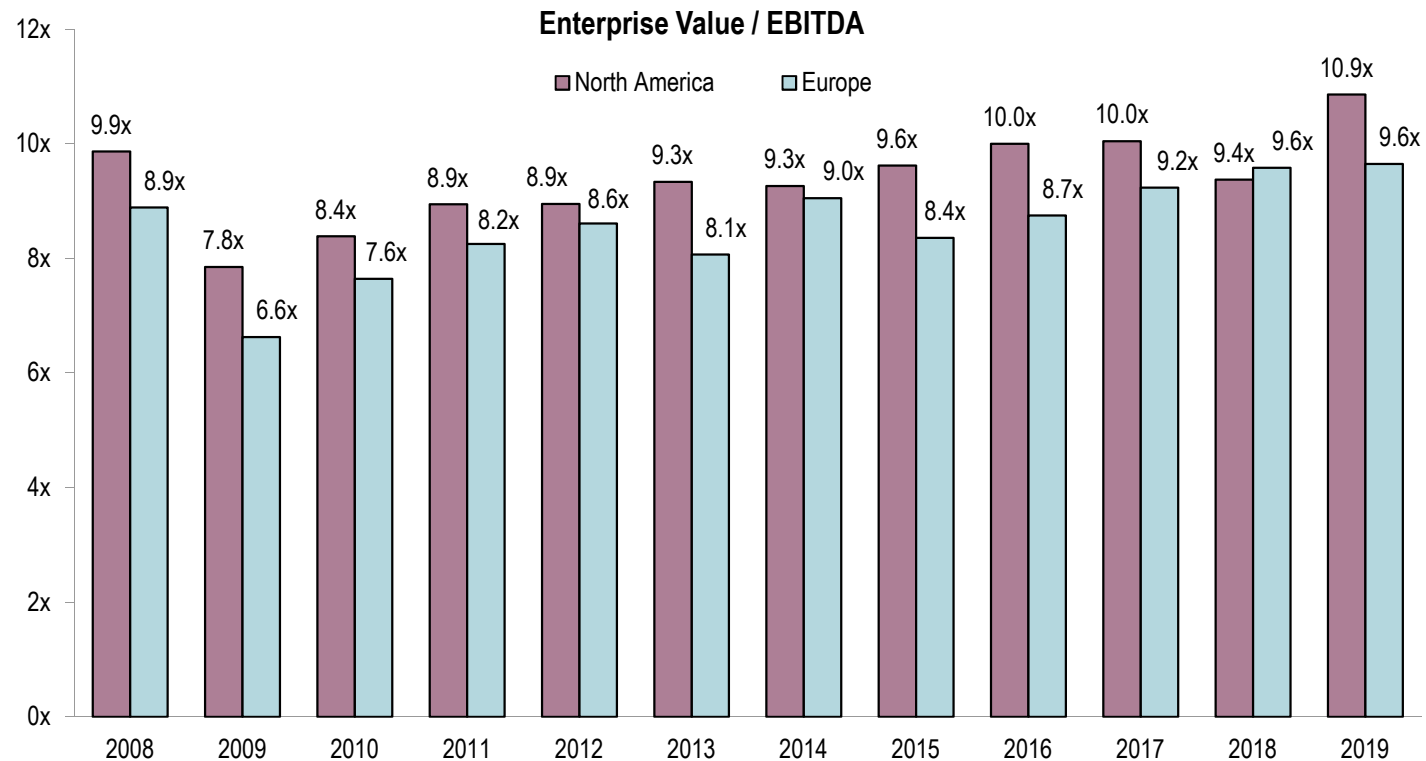
U.S. PE Activity by Year, 2010 – Q2 2019¹



- U.S. buyout investment activity was strong in 2018, reaching the highest deal count and second-highest deal value on record. Including additional estimated H1 2019 deals (not shown above) of ~\$36 billion, PE deal activity is off to another strong start in 2019, but is off pace to break the records set in 2018.
- During the first half of 2019, a Hellman & Friedman-led consortium completed an \$11.0 billion take-private of Ultimate Software Group, a human capital management company that had been public for over 20 years prior to the purchase.

¹ Source: Pitchbook.

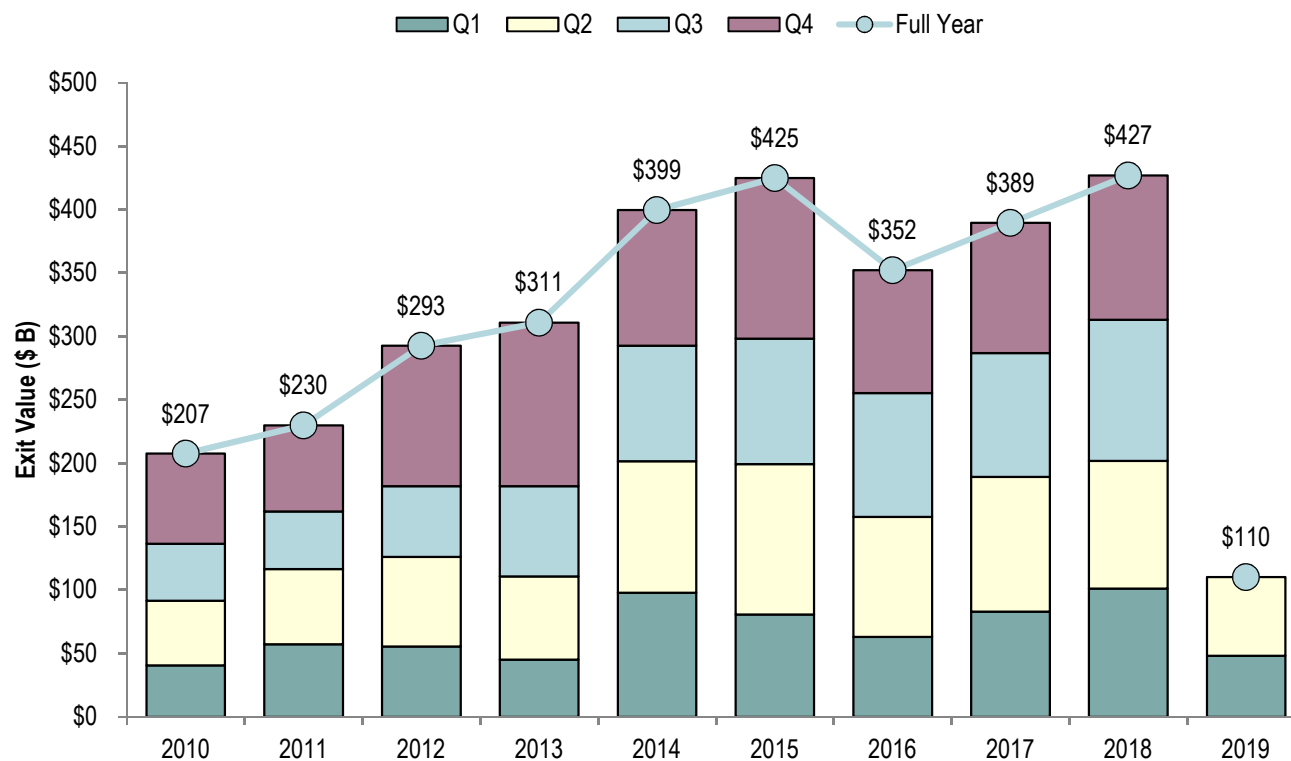
M&A Transaction Multiples, 2008 – Q1 2019¹



- Median valuations in North America during 2018 declined to the lowest level since 2014, but increased back to record levels during the first quarter of 2019.
- Valuations in Europe have steadily increased since 2015 while generally remaining somewhat below valuations in North America.

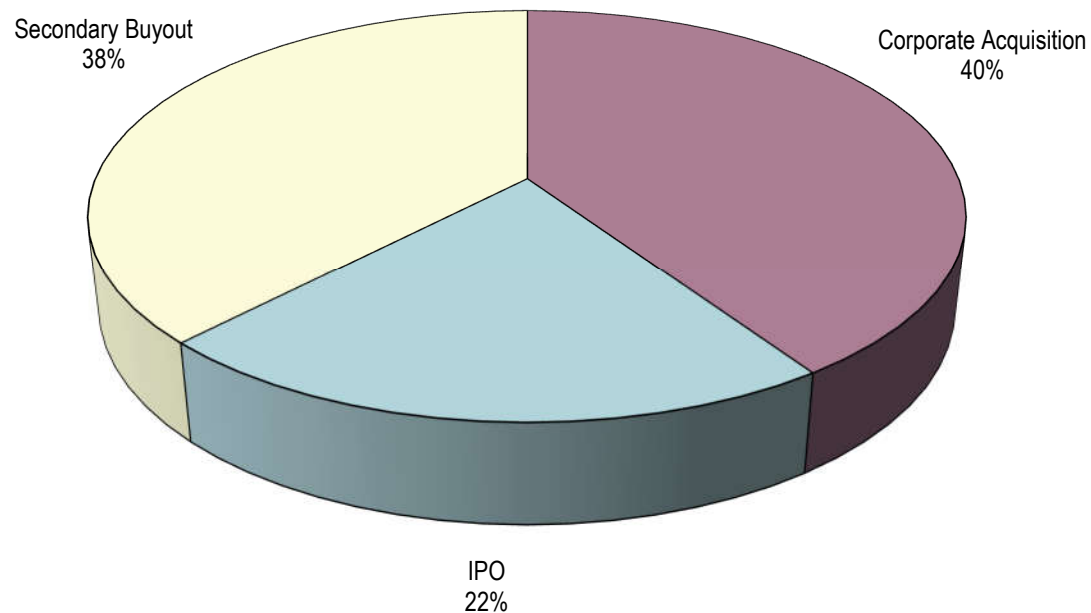
¹ Source: Pitchbook.

U.S. PE-backed Exit Activity, 2010 – Q2 2019¹



- Following the strong exit activity during 2018, exit value and number of exits dropped off meaningfully during the first half of 2019 as GPs continued to hold onto portfolio companies in the wake of a spike in public market volatility during Q4 2018.

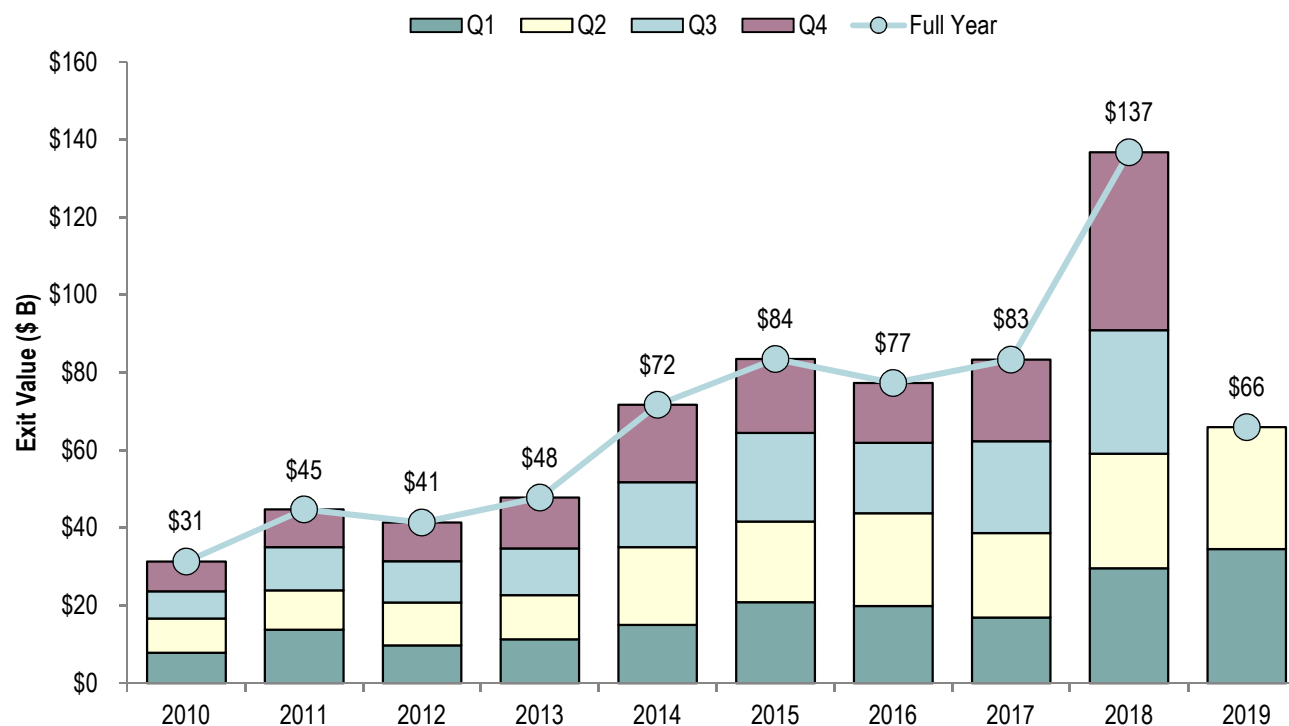
¹ Source: Pitchbook.

U.S. PE-backed Exits (\$ Value), H1 2019¹

- The quarterly total of PE-backed IPOs during the second quarter of 2019 reached the highest point in five years, partially due to the public offering of Avantor Inc. – a provider of specialty chemicals and services for biopharma and related industries.
- Strategic sales accounted for most of the exit value during the first half, though secondary buyouts recorded the highest number of exits over the same period.

¹ Source: Pitchbook.

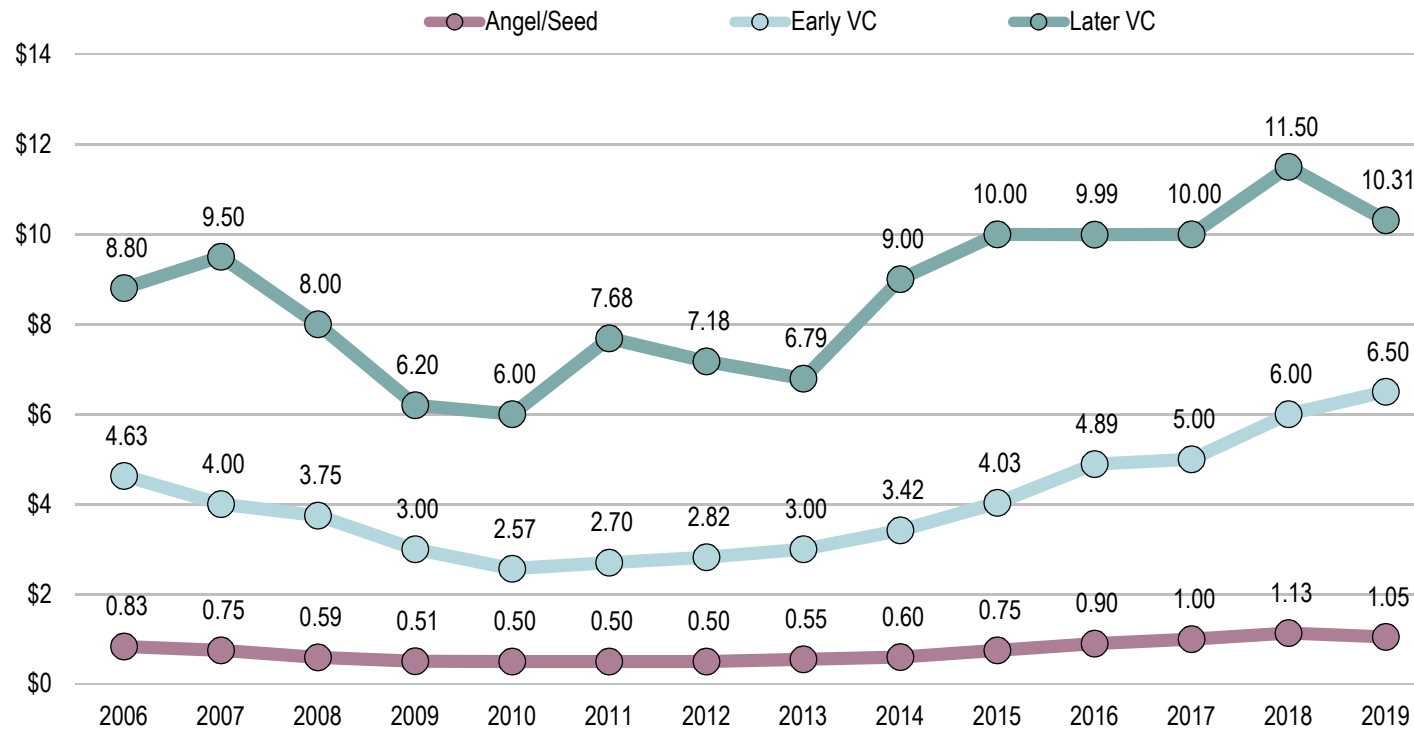
U.S. VC Activity by Year, 2010 – Q2 2019¹



- U.S. Venture activity remained strong during the first half of 2019, and is on pace to exceed \$100 billion for 2019, the high watermark set at the height of the dot-com boom in 2000 and surpassed for the first time in 2018.
- The number and value of investments in “unicorns,” or firms valued greater than \$1 billion, were slightly down in Q1 and Q2 2019 from the all-time highs reached in Q4 2018, though significantly higher than any quarters prior to 2018.

¹ Source: Pitchbook.

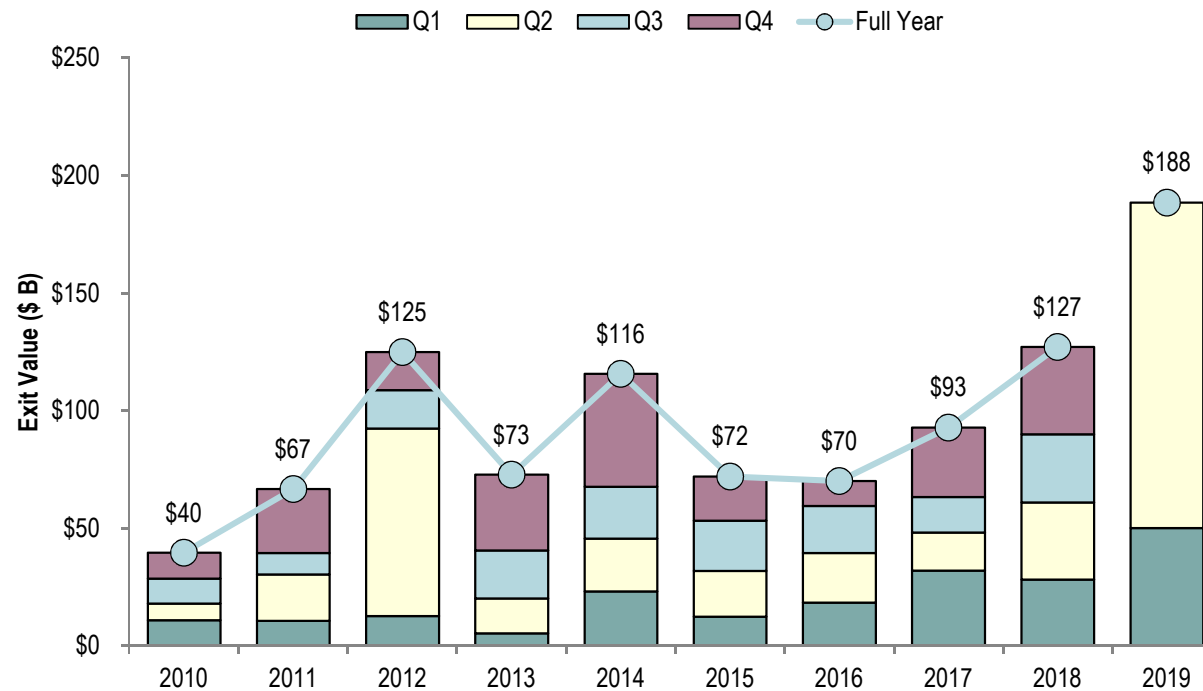
Median VC Round Size (\$mm), 2006 – Q2 2019¹



- Median round sizes for U.S. venture transactions in the angel/seed stages were slightly down in the first half of 2019, while later stage VC round sizes reverted back to 2015-2017 levels from a high point reached in 2018. Early stage VC round sizes have increased somewhat due to the increased prevalence of early stage mega-funds.
- The profile of companies at each stage appears to have shifted across the entire venture funding cycle.

¹ Source: Pitchbook.

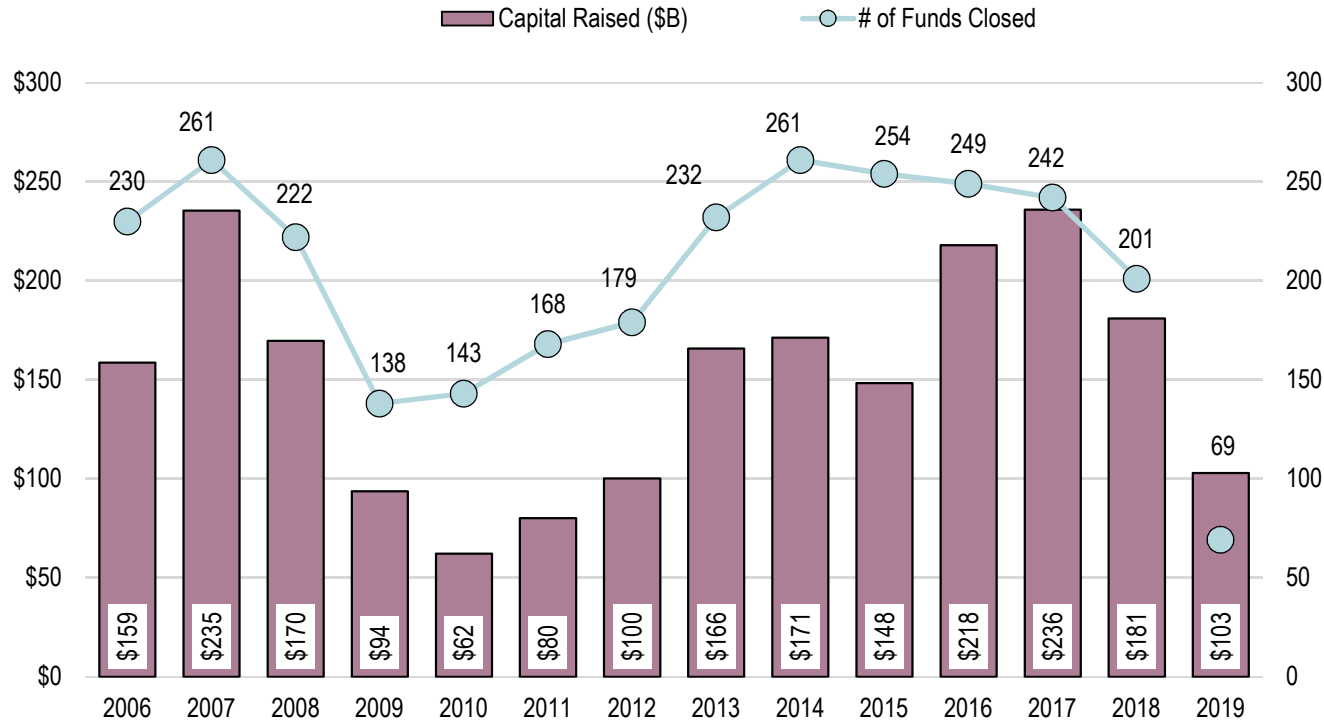
U.S. VC-backed Exit Activity, 2010 – Q2 2019¹



- There was more US VC-backed exit value during the second quarter of 2019 than in any recent prior year.
- The record level of VC exit value during the second quarter was partially attributable to the long-awaited IPO of Uber in addition to the public offerings of Slack (through direct listing), Pinterest, and Zoom Video Communications. There was also a higher number of IPO exits during the second quarter than any previous quarter other than Q1 2014.

¹ Source: Pitchbook.

U.S. PE Fundraising, 2006 – Q2 2019¹

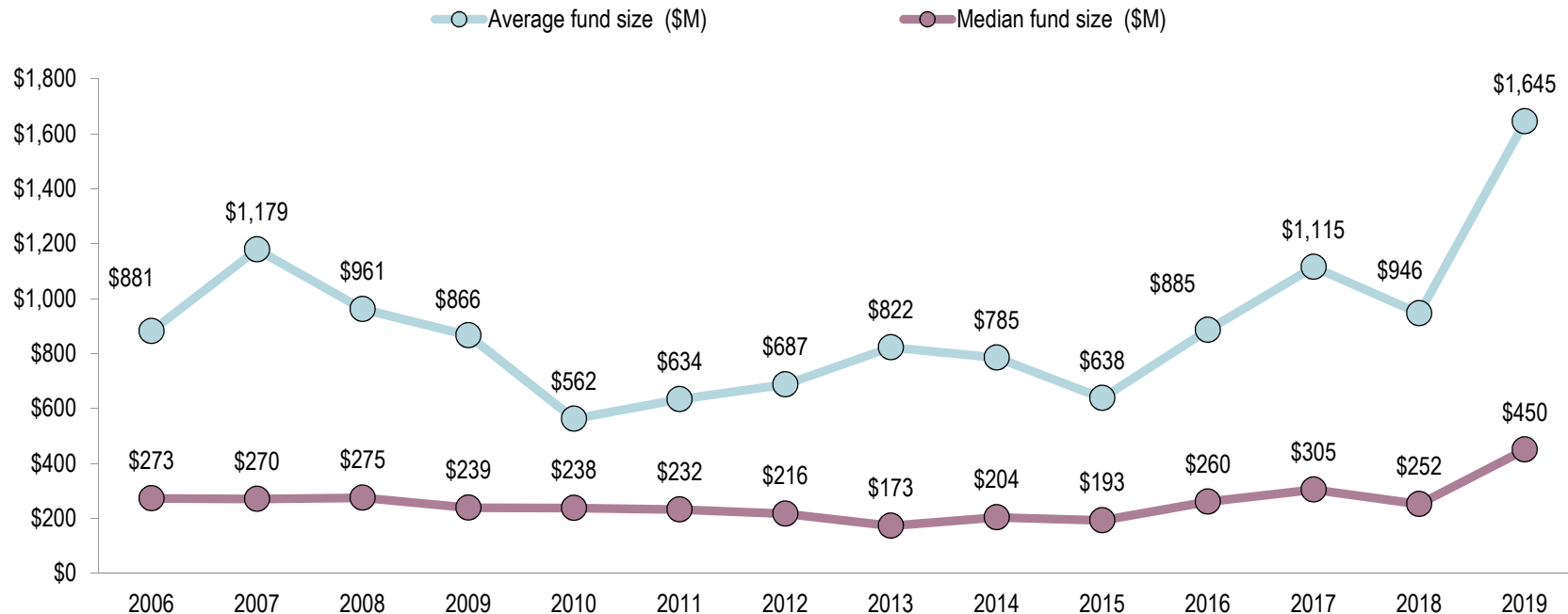


- Fundraising during the first half of 2019 is on pace to match or exceed 2018's total.
- H1 2019 continued the trend towards fewer – but larger – funds as the average fund during the period reached a record \$1.6 billion.

¹ Source: Pitchbook.



Average & Median U.S. PE Buyout Fund Size, 2006 – Q1 2019¹



- Average and median fund sizes during the first half of 2019 for US buyouts increased meaningfully beyond levels reached in any prior years.
- Total fundraising figures for the half were pushed upward by the closing of Advent Global Private Equity IX at \$17.5 billion and Thoma Bravo Fund XIII at \$12.6 billion in commitments.
- Fundraising is expected to remain robust through the end of the year due to the mega-funds from Blackstone and Warburg Pincus expected to close within the year.

¹ Source: Pitchbook.

Appendix

California Public Employees' Retirement System Private Equity Program

Appendix – Vintage Years

Vintage Years	Capital Committed ¹ (\$ mm)	Total Contributions ¹ (\$ mm)	Unfunded Commitment ¹ (\$ mm)	Total Distributions ¹ (\$ mm)	Reported Value ¹ (\$ mm)
Vintage Year 1990	125.3	124.1	0.0	298.1	0.0
Vintage Year 1991	171.8	207.2	0.0	537.7	0.0
Vintage Year 1992	160.0	156.6	0.0	341.5	0.0
Vintage Year 1993	538.0	567.9	0.0	1,083.3	0.0
Vintage Year 1994	1,494.2	1,512.9	0.0	2,515.6	0.0
Vintage Year 1995	1,222.9	1,236.8	0.0	2,034.4	0.0
Vintage Year 1996	1,157.3	1,183.2	3.1	1,580.1	0.0
Vintage Year 1997	1,101.7	1,133.5	0.0	1,668.7	0.0
Vintage Year 1998	2,205.5	2,388.1	0.3	3,166.6	0.2
Vintage Year 1999	3,287.4	3,456.6	53.8	4,248.5	46.5
Vintage Year 2000	2,708.5	2,675.7	12.2	3,886.3	6.7
Vintage Year 2001	4,520.5	4,768.2	54.5	7,636.2	155.1
Vintage Year 2002	884.6	1,104.0	1.5	1,598.7	19.8
Vintage Year 2003	1,543.3	1,751.9	36.4	3,499.4	56.8
Vintage Year 2004	1,887.5	1,972.7	32.8	3,181.7	23.1
Vintage Year 2005	3,763.7	3,971.6	196.8	5,657.4	140.8
Vintage Year 2006	9,678.8	10,904.8	641.9	13,971.2	1,032.2
Vintage Year 2007	13,372.4	14,616.9	687.9	19,064.7	2,157.2
Vintage Year 2008	10,987.9	12,580.5	607.2	17,508.3	2,751.6
Vintage Year 2009	891.5	872.8	43.9	619.5	671.4

¹ Source: CalPERS. As of 6/30/2019. Some commitments signed in 2018-2019 are not yet included in data.

California Public Employees' Retirement System Private Equity Program

Appendix – Vintage Years

Vintage Years (Continued)	Capital Committed¹ (\$ mm)	Total Contributions¹ (\$ mm)	Unfunded Commitment¹ (\$ mm)	Total Distributions¹ (\$ mm)	Reported Value¹ (\$ mm)
Vintage Year 2010	699.4	921.2	37.3	1,040.7	293.5
Vintage Year 2011	1,912.0	1,985.4	236.1	1,889.8	1,286.7
Vintage Year 2012	2,406.0	2,719.6	237.1	2,401.5	1,587.3
Vintage Year 2013	3,815.9	3,923.7	725.6	2,165.5	3,519.5
Vintage Year 2014	4,246.6	3,949.4	803.8	1,794.5	3,198.8
Vintage Year 2015	3,195.6	2,563.1	798.4	960.3	2,944.3
Vintage Year 2016	2,926.6	2,860.0	852.3	876.8	2,296.9
Vintage Year 2017	2,982.6	2,334.4	742.5	185.7	2,404.3
Vintage Year 2018	4,200.5	1,353.1	2,854.6	12.3	1,440.8
Vintage Year 2019	4,322.6	487.5	3,887.0	0.6	481.2

¹ Source: CalPERS. As of 6/30/2019. Some commitments signed in 2018-2019 are not yet included in data.



California Public Employees' Retirement System Private Equity Program

Appendix – Vintage Years

Strategies	Capital Committed¹ (\$ mm)	Total Contributions¹ (\$ mm)	Unfunded Commitment¹ (\$ mm)	Total Distributions¹ (\$ mm)	Reported Value¹ (\$ mm)
Buyouts	59,728.8	53,345.4	14,407.5	62,759.9	18,195.4
Credit	11,734.0	12,411.8	1,086.6	16,023.1	1,986.6
Growth/Expansion	12,956.1	11,874.7	1,650.6	13,561.6	3,709.7
Opportunistic	6,094.6	5,547.9	1,311.5	5,295.9	2,000.1
Venture	8,002.6	8,165.0	89.1	9,573.6	561.3

¹ Source: CalPERS. As of 6/30/2019. Some commitments signed in 2018-2019 are not yet included in data.

